

10/791,295
PTGF-03109
HIR.092

AMENDMENTS TO THE CLAIMS:

1. (Currently amended) A light emitting apparatus, comprising:
 - a semiconductor light emitting element that emits light with a predetermined wavelength;
 - a light-transmitting portion that includes a recess, said semiconductor light emitting element being inserted into said recess to house the semiconductor light emitting element, the light-transmitting portion comprising being of a light-transmitting material and the recess being formed with a predetermined size provided by molding the light-transmitting material; and
 - a phosphor layer portion that is thinly formed along the surface of the recess, the phosphor layer portion including a phosphor to be excited by irradiating light emitted from the semiconductor light emitting element.
2. (Previously presented) The light emitting apparatus according to claim 1, wherein the light-transmitting portion has a light convergence shape to converge light emitted from the light emitting element.
3. (Previously presented) The light emitting apparatus according to claim 1, wherein the semiconductor light emitting element is a flip-chip type LED element that emits light from its light emission surface located on the opposite side of its mounting surface.
4. (Previously presented) The light emitting apparatus according to claim 1, wherein the recess is located close to the semiconductor light emitting element along the profile of the semiconductor light emitting element.
5. (Previously presented) The light emitting apparatus according to claim 1, wherein the semiconductor light emitting element is composed of a plurality of LED elements disposed in a predetermined arrangement.

10/791,295
PTGF-03109
HIR.092

6. (Previously presented) The light emitting apparatus according to claim 1, wherein the semiconductor light emitting element is composed of a plurality of LED elements with different emission wavelengths disposed in a predetermined arrangement.

7. (Currently amended) A method of making a light emitting apparatus, comprising:

preparing a light-transmitting portion that includes a recess to house a semiconductor light emitting element, the light-transmitting portion ~~comprising~~ being of a light-transmitting material and the recess being formed with a predetermined size provided by molding the light-transmitting material, the recess being provided with a phosphor layer that is thinly formed along the surface of the recess;

forming an electrode of metal material;

mounting the semiconductor light emitting element on the electrode;

positioning the light-transmitting portion adjacent to the electrode such that said semiconductor light emitting element is inserted into said recess; and

bonding the light-transmitting portion onto the electrode such that the phosphor layer of the recess surrounds an upper portion of the semiconductor light emitting element.

8. (Previously presented) The method according to claim 7, wherein the phosphor layer is formed by spraying a phosphor material on the surface of the recess after forming the recess by molding.

9. (Currently amended) The method according to claim 7, wherein the electrode comprises is a lead electrode provided on the surface of a submount member of high thermal conductivity.

10. (Currently amended) The method according to claim 7, wherein the electrode comprises is a copper-foil electrode provided through an insulation layer on the surface of a base member of high thermal conductivity.

10/791,295
PTGF-03109
HIR.092

11. (Previously presented) The method according to claim 7, wherein the semiconductor light emitting element is flip-chip bonded onto the electrode.

12-25. (Canceled)

26. (Previously presented) The apparatus according to claim 1, further comprising:
a sealant formed between said light emitting element and said phosphor layer portion, for sealing said light-emitting element,
wherein said sealant comprises a transparent silicon resin.

27. (Previously presented) The apparatus according to claim 1, further comprising:
a plurality of leads; and
a submount formed on said plurality of leads, said light emitting element being formed on said submount.

28. (Previously presented) The apparatus according to claim 27, wherein said submount comprises a thermally conductive submount.

29. (Previously presented) The apparatus according to claim 27, wherein said light transmitting portion is formed on said plurality of leads, said recess being aligned with said light emitting element.

30. (Previously presented) The apparatus according to claim 27, further comprising:
a wiring pattern formed on said submount, said light emitting element being mounted on said wiring pattern.

31. (Previously presented) The apparatus according to claim 30, wherein said light emitting element is flip-chip bonded through bumps onto the wiring pattern.

32. (Previously presented) The apparatus according to claim 30, wherein said submount

10/791,295
PTGF-03109
HIR.092

comprises a viahole, said wiring pattern being electrically connected through said viahole to said lead.

33. (Previously presented) The apparatus according to claim 1, wherein said light emitting element emits light having a wavelength in a range from 450nm to 480 nm.

34. (Previously presented) The apparatus according to claim 1, wherein said phosphor layer portion comprises Ce:YAG.

35. (Previously presented) The apparatus according to claim 1, wherein said phosphor layer portion comprises a uniform thickness.

36. (Previously presented) The method according to claim 7, further comprising:
forming a sealant between said light emitting element and said phosphor layer,
for sealing said light emitting element, said forming said sealant comprising:
injecting said sealant into said recess; and
fixing said light transmitting portion onto said light emitting element
such that said light emitting element is sealed with said sealant.

37. (Currently amended) A light emitting apparatus, comprising:
a light emitting element that emits light with a predetermined wavelength;
a molded lens comprising a recessed portion which has a predetermined size,
said light emitting element being inserted into said recessed portion such that said
molded lens and is formed over said light emitting element; and
a phosphor layer formed on a surface of said recessed portion, said phosphor
layer including a material which is excited by light emitted from the light emitting
element,
wherein a sealant is formed between said light emitting element and said
phosphor layer, for sealing said light emitting element.